

U.S. Appl. No. 10/720,512
Docket No. 1999B060/3

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1-13. (Canceled)

14. (Previously Presented) A process of producing an adhesive composition comprising:

- a) reacting propylene and at least one comonomer selected from the group consisting of ethylene and C₄ to C₂₀ α -olefins, under polymerization conditions in the presence of a metallocene catalyst capable of incorporating the propylene into isotactic or syndiotactic sequences, in at least one reactor to produce a first copolymer having at least 65 mole % propylene; and

- b) optionally, adding a tackifier;

wherein the first copolymer has a melting point of 25 to 120 °C, a melt index (MI) from about ~~7 dg/min~~ 78 dg/min to about 3000 dg/min according to ASTM D 1238 (B) at 190°C, and wherein the MFR, as measured according to ASTM D 1238 at 230°C, of the first copolymer is greater than 250 dg/min.

15. (Previously Presented) The process of claim 14 further comprising:

- c) reacting propylene and at least one comonomer selected from the group consisting of ethylene and C₄ to C₂₀ α -olefins, under polymerization conditions in the presence of a metallocene catalyst capable of incorporating the propylene into isotactic or syndiotactic sequences, in another reactor or subsequent reactors, to produce a second copolymer having at least 65 mol % propylene;
- d) combining the contents of the first reactor with the contents of the subsequent reactors to form a blend, and;

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- e) recovering the blend of step (d), and;
optionally adding a tackifier at any time in the process.
16. (Previously Presented) The process of claim 14 wherein the first copolymer comprises a semi-crystalline copolymer of propylene and at least one comonomer selected from the group consisting of ethylene and C₄ to C₂₀ α -olefins, having a propylene content of greater than 73 mole percent.
- 17-40. (Canceled)
41. (Withdrawn-Currently Amended) A process for making a degraded adhesive composition, comprising:
- (a) providing a first polymer composition having an MFR less than 250 dg/min. at ~~230NC~~ 230°C and comprising a random copolymer produced by copolymerizing propylene and at least one of ethylene or alpha-olefin having 20 or less carbon atoms, the random copolymer having a crystallinity at least about 2% and no greater than about 65% derived from stereoregular polypropylene sequences and a melting point of from about ~~25NC~~ 25°C to about ~~105NC~~ 105°C; and
 - (b) contacting the first polymer composition, in the melted state, with a free radical initiator, to provide a second polymer composition, where the second polymer composition has an MFR greater than 250 dg/min. at ~~230NC~~ 230°C.
42. (Withdrawn-Currently Amended) The process of claim 41 in which the first polymer composition has an MFR less than 50 dg/min. ~~230NC~~ 230°C prior to contacting the first polymer composition with the free radical initiator.
43. (Withdrawn) The process of claim 41 in which the free radical initiator comprises a peroxide.

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44. (Withdrawn) The process of claim 41 in which the free radical initiator comprises 2,5-bis(tert-butylperoxy)-2,5-dimethyl-hexane.
45. (Withdrawn) The process of claim 41 in which the free radical initiator comprises a diazo compound.
46. (Withdrawn) The process of claim 41 in which the first polymer composition or the second polymer composition, or both, additionally comprises a crystalline polymer blended with the random copolymer, wherein the crystalline polymer has a melting point greater than about 130°C.
47. (Withdrawn) The process of claim 41 in which the first polymer composition or the second polymer composition, or both, additionally comprises a crystalline polymer blended with the random copolymer, wherein the crystalline polymer comprises polypropylene or a copolymer comprising propylene units and at least one comonomer selected from the group consisting of ethylene or C4-C20 alpha-olefins, the copolymer having a comonomer content of less than about 15 mole%.
48. (Withdrawn) The process of claim 41 in which the first polymer composition is fully melted in the presence of the free radical initiator.
49. (Withdrawn) The process of claim 41 in which an effective amount of free radical initiator is contacted with the first polymer composition.
50. (Withdrawn) The process of claim 41 in which the free radical initiator is present in an amount sufficient to increase the MFR of the first polymer composition by at least 100% to form the second polymer composition.

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51. (Previously Presented) The process of claim 14 further comprising the step of adding a tackifier at any time in the process.
52. (Previously Presented) The process of claim 14 wherein the first copolymer has propylene pentad sequences and wherein at least 40% of the propylene pentad sequences are in isotactic or syndiotactic orientations.
53. (Previously Presented) The process of claim 14 wherein the first copolymer has propylene pentad sequences and wherein more than 80% of the propylene pentad sequences are in isotactic orientation.
54. (Previously Presented) The process of claim 15 wherein the second copolymer has propylene pentad sequences and wherein at least 40% of the propylene pentad sequences are in isotactic or syndiotactic orientations.
55. (Previously Presented) The process of claim 15 wherein the second copolymer has propylene pentad sequences and more than 80% of the propylene pentad sequences are in isotactic orientation.
56. (Previously Presented) A process of producing an adhesive composition comprising:
- a) reacting propylene and at least one comonomer selected from the group consisting of ethylene and C₄ to C₂₀ α -olefins, under polymerization conditions in the presence of a metallocene catalyst capable of incorporating the propylene into isotactic or syndiotactic sequences, in at least one reactor to produce a first copolymer having at least 65 mole % propylene and wherein at least 40% of the propylene pentad sequences are in isotactic or syndiotactic orientations; and
 - b) optionally, adding a tackifier;

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wherein the first copolymer has a melt index (MI) from about 7 dg/min to about 3000 dg/min according to ASTM D 1238 (B) at 190°C, and wherein the MFR, as measured according to ASTM D 1238 at 230°C, of the first copolymer is greater than 250 dg/min.

57. (Previously Presented) The process of claim 56 wherein more than 80% of the propylene pentad sequences are in isotactic orientation.
58. (Previously Presented) The process of claim 56 wherein the first copolymer comprises a semi-crystalline copolymer of propylene and at least one comonomer selected from the group consisting of ethylene and C₄ to C₂₀ α -olefins, having a propylene content of greater than 73 mole percent.
59. (New) The process of claim 14, wherein the first copolymer has a melting point of 60 to 120 ° C.
60. (New) The process of claim 14, wherein the first copolymer has a melt index of 78 to 630 dg/min.